North Korea and diversion: A quantitative analysis (1997–2011)

Robert Daniel Wallace

Center for Strategic Intelligence Research, National Intelligence University, 200 MacDill Blvd Southeast, Washington, DC, USA

ARTICLE INFO

Article history:
Available online 9 May 2014

Keywords:
North Korea
Conflict
Diversionary theory
Event data
Quantitative analysis

ABSTRACT

In this research, I propose that the concept of diversionary theory provides at least a partial explanation for North Korea’s conflict activities. I examine and analyze the country’s data on diplomatic and military activities from 1997 to 2011 and argue that North Korea’s domestic conditions influence its willingness to engage in external conflict. I also examine the impact of such external influences as UN sanctions, leadership changes in the region, national capacities of the US, South Korea, and Japan, and strategic military exercises on DPRK-initiated conflicts. This study provides insight into the activities of this reclusive state and also demonstrates useful techniques that can be applied to analyze other similarly closed nations. The findings suggest that there are identified links between internal conditions and the Kim regime’s aggressive actions between 1997 and 2011 in support of the diversionary argument. Concurrently, there is less evidence that North Korea’s hostile diplomatic and military activities are based on external pressures.

1. Introduction

North Korea presents a unique dilemma for the security of East Asia (and the international community) as both a poverty-stricken nation and a nuclear-armed state. The North Korean government routinely uses both diplomatic threats and armed force to advance its agenda, but the Kim regime’s closed nature makes empirical research on its actions difficult. Scholars rarely attempt to analyze the actions of North Korea using systematic methods, and most available research on this state consists of qualitative or policy-driven studies. Yet data is available that potentially helps understand why the ruling Kim regime routinely uses conflict actions to achieve national and foreign policy goals. By analyzing data between 1997 and 2011, I found that North Korea’s use of hostile foreign policy was influenced by internal conditions faced by the Kim regime which supported diversionary theory. Concurrently, I argue that external conditions are less important factors for Kim regime’s decisions to engage in conflict. Most international relations scholars readily admit that domestic factors influence foreign policy, yet the linkages between internal conditions and international actions by authoritarian states are often difficult to identify. This research seeks to address this gap in knowledge about the world’s most secluded state, the Democratic People’s Republic of Korea (DPRK).

This paper is organized as follows. In the first section, I discuss diversionary theory and derive two hypotheses. These are based on the relationships between DPRK-initiated conflicts and the conditions faced by the North Korean regime (internal

---

1 Diversionary theory contends that leaders, in times of crisis will commit their nations to external use of force to alleviate the national focus from domestic to international issues. This concept has a number of names such as the diversionary theory of war, the diversionary hypothesis, diversionary force, or diversionary foreign policy (Levy, 1989; Mitchell and Thyne, 2010; Kisangani and Pickering, 2007; Oakes, 2006).
and external pressures). The next portion identifies and defines both the dependent variable (Kim regime's hostile foreign policy activities) and independent variables (internal and external conditions). The third part explains the conflict data analysis of North Korean hostile foreign policy; and the fourth portion provides the overall statistical analysis of the data. In the final section, I discuss both the relationship between the analytical results and diversionary theory and the overall contribution of this research project.

2. Diversionary concepts and derived hypotheses

There is an abundance of historical anecdotes surrounding the use of diversion by national leaders to solve domestic tensions. Notable figures such as Machiavelli, Shakespeare, and Jean Bodin have commented on the unifying potential of diversionary foreign policy activity. Additionally, one of the most famous interstate conflicts, the Russo-Japanese War (1904–1905), began purportedly because Russia needed a “short victorious war to stem the tide of revolution” (Walder, 1974). More recent conflicts associated with diversionary force include the 1982 Falklands War, US invasions of Iraq in 1991 and 2003, US 1998 missile attacks against terrorist targets in Afghanistan and Sudan, and the conflict between Russia and Georgia in 2008 (Oakes, 2006; Kisangani and Pickering, 2009; Oreskes, 1990; Milbank, 2002; Purdum, 1998; Filipov, 2009).

For North Korea, diversionary behavior offers the potential advantages of unifying the public against a common foe—generally the United States or South Korea—and a means for the government to direct public attention from domestic difficulties. While some may argue that authoritarian governments have little use for diversion, since these types of regimes tend to limit the activities of the public (Peceny and Beer, 2003), other scholars suggest that diversionary activities are common among many states and North Korea is no exception (Mitchell and Prins, 2004; Reily, 2004).

North Korea’s foreign policy activities, as with any other state, range from cooperation to conflict relationships with other nations. Yet the international community is most concerned with Pyongyang’s provocative foreign policy actions, which seem to demonstrate the Kim regime’s willingness to risk war to achieve foreign policy goals. This “hostile foreign policy” (HFP) includes activities such as clandestine infiltrations into South Korea, nuclear weapons testing, and diplomatic threats. To analyze these potential diversionary activities, I formed the two hypotheses. The first contends that domestic factors cause the Kim regime to engage in hostile foreign policies. The second supports a systemic view of the influences on state’s behavior and argues that the international community is more influential in North Korea’s foreign policy choices.

These concepts are expressed as follows:

**Hypothesis 1.** (H1): Domestic difficulties in North Korea cause an increase in hostile foreign policy initiated by this country.

**Hypothesis 2.** (H2): External actors and increased international tensions cause increases in hostile foreign policy initiated by North Korea.

3. The variables

North Korea’s hostile foreign policy constitutes the dependent variable for this research, while its domestic conditions and international influences are the independent variables. To address alternative explanations for North Korean conflict activities I include two control variables: the type of South Korean administration and trade levels between North Korea and China.

3.1. The dependent variable: hostile foreign policy actions

The dependent variable used in this analysis is hostile foreign policy (HFP). I define HFP as domestic or international actions by governments or government-sanctioned entities intended to negatively influence or detrimentally affect a target state...
through diplomatic, social, economic, or military activities ranging from provocative statements to hostile acts in support of national or regime goals.

This definition of HFP focuses on foreign policy activities that are intended to have detrimental effects on the target state. These include actions that have direct impacts, such as military conflict, or lesser activities that are intended to influence other states, including propaganda statements or an unwillingness to cooperate. Additionally, these activities span the full range of leadership actions and include diplomatic actions by the government or its representatives, economic measures with local or international effects, and military activities such as exercises or actual hostilities. Finally, these actions are linked to the national leadership and efforts to retain both sovereignty and power: these are deliberate activities in support of national or regime objectives.

In the case of North Korea, this definition provides for the inclusion of a wide range of hostile foreign policy, such as North Korea’s routine use of propaganda statements and aggressive policy announcements, which often spur international concern. An example of a diplomatic HFP would be North Korea’s threat to turn Seoul into a “sea of fire”, which was a warning of DPRK intentions to use nuclear weapons against the Republic of Korea (ROK) (Financial Times, 1994). Other provocative statements from the Kim leadership on the security situation (such as North Korea’s annual “New Year’s Statement”) often include threats from the civilian leaders of the DPRK against both the US and South Korea.

Economic events that fit the category of “hostile foreign policy” often include North Korean actions involving joint economic ventures between North and South Korea, such as the Kaesong Industrial Complex and the Mount Kumgang Tourist Area, both located in North Korea. In August 2011, North Korea seized all South Korean assets at the Mount Kumgang and ended its joint venture with the ROK at that location (Chosun Ilbo, 2011a; Chosun Ilbo, 2011b). Finally, North Korea’s military activities are the most visible of its HFP events and range from DMZ incidents and naval clashes to nuclear tests. Yet there are limits to North Korea’s hostile actions, as the Kim regime does not intend to start a second Korean war. Instead, North Korean leaders are most likely focused on shaping the overall security environment to retain the DPRK’s national sovereignty and to ensure the Kim regime maintains control over its government and society.

3.2. The independent variables: conditions faced by the regime

The independent variables I use to analyze these events are divided into domestic difficulties and external influences. South Korean defense officials noted that both are influential in North Korean aggressive foreign policy choices (KNDU, 2011).

3.2.1. Domestic difficulties (Internal Conditions)

I define domestic difficulties as the actual or perceived political, social, or economic conditions that negatively affect a given society, including conditions that interfere with the regime’s ability to govern and maintain control over its population. This definition assumes that certain internal conditions, which threaten the Kim regime’s sovereignty or ability to govern, could potentially spur domestic unrest and internal instability. This research proposes that North Korea’s domestic conditions are potentially the influential triggers for hostile actions. If these internal conditions become unstable or deteriorate, the resultant effects will negatively influence North Korean society and conflict actions will increase.

The first set of independent variables is related to domestic difficulties and support Hypothesis 1. These include indicators of domestic instability (political, economic, and social) and their relationships to hostile foreign policy actions. These variables have been measured per capita using North Korean population statistics (USG, 2013) and discussed in the following section.

3.2.1.1. Political instability. For North Korea, political conditions that fall into the category of domestic difficulties include regime instability or change and elite or mass unrest. Claude Ake (1975) defined political stability as “the extent that members of society restrict themselves to the behavior patterns that fall in the limits imposed by political roles expectations. Any act that deviates from these limits is an instance of political instability” (Ake, 1975). Gates et al. (2006) add that it requires “institutional consistency” and that both autocracies and democracies have inherent characteristics that “self-enforce” political stability.

The Kim regime has weathered two generations of familial succession (Kim Il-sung to Kim Jong-il and now to Kim Jong-un) and conducted a number of purges to consolidate power over the years, often associated with political or military conflict.
Another influential event for the DPRK would be a leadership crisis, which can potentially be associated with increases in conflict activities. These include regime leadership changes (in 1994 and 2011), purges by the Kim regime (in the 1960s and 1990s), and other leadership efforts to consolidate power.13 The analysis of these events and the presence of heightened (or decreased) levels of internal or external conflict might provide important insight to relationship between regime change or consolidation and the hostile foreign policy activities by the DPRK.

The first measure for political instability is a component of Kaufmann’s (2009) World Governance Indicators (WGI) project. The WGI includes an index that measures political stability and the level of violence (designated “PV”) and includes data on North Korea.14 Kaufmann (2009) defines PV as “perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism.” This definition provides a measure of the stability of the North Korean government which has had a reported history of political violence and (to a lesser extent) political instability (Hawk, 2003; Kang, 2002; Hassig and Oh, 2009). The second measure of political instability is Ishiyama’s (2012) elite volatility scores, which measures how the “political elite” or key leaders that surrounded Kim Jong-il and his successor Kim Jong-un have changed over time. Ishiyama (2012) measures this by analyzing the attendance of senior North Korean leaders on inspection visits conducted by Kim Jong-il. Changes to these attendees potentially indicate the overall composition of the Kim regime’s inner circle and provide a proxy measure for political stability.

An additional proxy measure of political stability is North Korea’s national capacity based on the Composite Indicator of National Capabilities (CINC) index from the Correlates of War Project (COW, 2012). The CINC database uses a number of measures to determine overall capabilities including military personnel, defense expenditures, population levels, iron, steel, and energy consumption (CINC, 2012). This measure has not been used previously to gauge North Korea’s internal stability, yet the CINC researchers note that the components of this measure (demography, industrial capacity, and military characteristics) “reflect the breadth and depth of the resources that a nation could bring to bear in instances of militarized disputes” (NMC, 2005).15 These same capabilities allow the Kim regime to remain in power and limit the potential for political dissent, thus increased CINC scores for North Korea equates to enhanced power for the regime and less possibility of political instability.16

3.2.1.2. Economic instability. Economic conditions are also useful indicators of internal stability. For North Korea, these are measured using proxy data to include the rise and fall of the DPRK’s gross domestic product (GDP) and the balance of trade with foreign countries (how much the DPRK imports and exports). These two indicators help determine the health of North Korea’s economy and relative dependence on external nations to support its domestic material needs. For this measure I use gross domestic product growth and total trade. GDP growth (calculated year to year) provides a relatively simple measure of the wealth and economic health of the DPRK.17 The Bank of Korea (BOK, 2012) routinely monitors North Korea’s economy and the BOK’s historic estimates of GDP growth are included for this analysis. The other indicator for the performance of the North Korean economy is the level of imports and exports, which has been used by other scholars to similarly estimate DPRK economic performance (Davies, 2002; Eberstadt, 1997).18

3.2.1.3. Social instability. I measure social instability by analyzing the level of dissatisfaction that the DPRK citizens feel towards the ruling government. While information on civic unrest in North Korea is difficult to obtain, the numbers of refugees that flee North Korea provides a useful proxy for public dissatisfaction. Data for other social indicators, such as infant mortality and food availability, also provide insight into the stability of DPRK society from a citizen’s perspective and are used for this study.

The first measure of social instability of North Korean society is measured by willingness of individuals to flee North Korea. Choosing to leave North Korea for China or the ROK is a “drastic act” since the “defector would know all too well that his family members remaining behind quite likely would be sent off to political prison camps, perhaps for the rest of their lives …” (Martin, 2006). Yet on a yearly basis, hundreds (and sometimes thousands) of North Koreans have chosen to leave the DPRK for South Korea (ROK MOU, 2012) and I use this data as a proxy measure of social stability.19

13 Michishita (2010) noted that many instances of efforts to consolidate power by the Kim regime from 1960 to 2008, were associated with conflict activity.
14 The World Governance Index (WGI) (2012) attempts to measure the level of “good” governance using “six dimensions of governance: Voice and Accountability, Political Stability and Absence of Violence/Terrorism, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption” (Kaufmann, 2009). This report includes data beginning in 1996 through 2008 for 212 territories and countries. Although the timeframe of the WGI data limits its explanatory capability, this index has the advantage of being one of the only structured measures of political stability applied to North Korea.
15 While this measure is not generally used to measure political stability, it does provide, at least in North Korea’s case, a measure of the Kim regime’s ability to remain stable and in power.
16 A number of authors use mass and elite unrest in a particular society as additional measures of political instability. This technique proposes that the influencers of social unrest include the level of dissatisfaction that both the elites (privileged members) of society as well as the masses (ordinary citizen) feel towards the ruling government. Kisangani and Pickering (2009) defined elite unrest in terms of “government crises and purges” and mass unrest as characterized by “general strikes, riots, and anti-government demonstrations” in their analysis of the effects of diversionary military activities.
17 For this research, I assume that yearly increases and decreases in GDP per person indicate whether North Korea’s national economy is growing or shrinking over time.
18 For this data, I use the Correlates of War database information on trade (COW Trade, 2012) and the total trade was computed as the yearly sum of all exports and imports. This information is supplemented by CIA data for the years 2010 and 2011 (CIA, 2013).
19 North Korean refugee information is available on a yearly basis from the South Korean government (ROK MOU, 2012).
Infant mortality rates (IMR) provide a second proxy for the overall health of North Korean society. For example, Abouhard and Kimball (2007) note that IMR can be used to “measure development and indicate the extent to which governments provide for the economic and social welfare of their citizens, both of which are correlates of conflict.” North Korea experienced declining rates of infant deaths between the 1960s and late 1980s, but after the end of the Cold War and during its famine period in the 1990s, the rates began to fluctuate (World Data Bank, 2012; UN Population, 2012).20 I rely on the World Bank’s World Development Indicators (World Data Bank, 2012) to measure IMR in North Korea.

The final measure of social stability involves food availability in North Korea with the assumption that if adequate sustenance is available, the public is more content with the DPRK leaders and their government. This became an acute issue during the 1990s, when North Korea experienced a severe famine in which up to a million deaths occurred as a result of food shortages (Haggard and Noland, 2007; Hassig and Oh, 2009). Thus, North Korea’s ability to provide food, either through domestic production or international aid, is a stabilizing factor in DPRK society and used as a proxy measure for social stability. This data is available from the Food and Agriculture Organization of the United Nations (FAOSTAT, 2012).21

3.2.2. External conditions

The second category of independent variables examines the pressure exerted on North Korea by the international community in attempts to change the Kim regime’s behavior. Indicators of these external conditions include international reactions to North Korean provocative activities such as United Nations resolutions, national capabilities of other regional actors, election cycles of externally influential states (US, ROK, and Japan), and the incidence of ROK-US alliance military exercises. These conditions often result in political rhetoric and occasional military responses from the DPRK.

3.2.2.1. UN Security Council Resolutions. North Korea’s actions have often resulted in international responses, the most significant being the UN reaction to the North Korean invasion of South Korea in 1950. North Korea’s decisions to engage in aggressive foreign policy and military activity might be influenced by these types of international responses to its own activity and UN Security Council resolutions.22

3.2.2.2. National capacity scores. The CINC (2012) scores from South Korea, the US, and Japan are additional measures of possible external “influencers” on DPRK conflict activities. During the 1990s, North Korea’s efforts to ensure its sovereignty resulted in a number of measures, including repurposing of DPRK military forces, ballistic missile and nuclear technology development, and the initiation of “Songun” (North Korea’s “military-first” policy). Given this emphasis by North Korea and the strong regional military alliances (US-ROK and US-Japan) faced by the Kim regime, the national capacity and defense capabilities of the US, South Korea, and Japan might be influential in DPRK decisions to pursue hostile foreign policies. Thus, changes in the CINC scores might be correlated with DPRK conflict activities.

3.2.2.3. Leadership changes. I also examine another indicator, external state leadership changes for South Korea, the US and Japan, to determine if there is a correlation between these events and North Korean hostile foreign policies. While there are several studies on the relationship between national elections and leadership decisions to use force, much of the research has primarily focused on the US and presidential decisions to use force in relation to a US election cycle (Ostrom and Job, 1986; James and Oneal, 1991; Meernick, 1994).23

3.2.2.4. Military exercises. Finally, I consider the impact of ROK-US strategic-level military exercises as a measure of external conditions as these types of military exercises often cause intense reactions from North Korea. In fact, one of the negotiating demands from North Korea during the 1993 nuclear crisis was the cancellation of the US-ROK “Team Spirit” military training exercises (Sigal, 1998). For example, the DPRK stated the following in reaction to joint ROK-US exercises in August 2011: “The Korean peninsula is faced with the worst crisis ever. An all-out war can be triggered by any accidents” (The Telegraph, 2011). Limited publically available research exists on the effects of ROK/US military exercises on North Korean behavior and no quantitative studies of North Korea (with the exception of D’Orazio, 2012)24 incorporate this variable.25

20 More information on the causes of the increase in infant mortality during the 1990s is available in case studies on North Korea’s famine (Natsios, 2001; Haggard and Noland, 2007).
21 Food availability is calculated per capita using US census data (US Census Bureau, 2012).
22 Chapman and Reiter (2004) use this indicator to measure international involvement in crises. This concept proposes that the increased international attention given to North Korea because of a new resolution might spur DPRK choices to use diversionary force. Ongoing resolutions (and economic sanctions) are not considered to have similar impacts on the Kim regime. These resolutions are coded as binary variables: quarters that include the enactment of a new resolution are coded as “1,” and all others are coded as “0.”
23 Leadership changes are coded “1” for the quarter in which they occur (based on the election date) and periods that include no change are coded “0.”
25 Military exercises at the strategic level are those which employ “instruments of national power in a synchronized and integrated fashion to achieve theater, national, and/or multinational objectives” and operational exercises are those which link the “tactical [combat] employment of forces to national and military strategic objectives” (US Department of Defense, 2011). Military war games such as the now defunct “Team Spirit” and ongoing Ulchi Freedom Guardian exercise fit this category of strategic events. Strategic military exercises jointly conducted by the ROK and US in a given quarter are coded as “1” for exercise periods (and “0” for non-exercise periods).
2.2.3. Controlling for ROK administration type and China trade

An alternative explanation for the initiation of diplomatic or military conflict by the Kim regime might be the influence of the political characteristics of the ruling party in South Korea. Generally, conservative ROK governments have traditionally taken a more “hardline” approach towards the DPRK while liberal administrations have been more open to engagement with the North. North Korean conflict might have been more prevalent during conservative ROK administrations, possibly because during these times, South Korea was less engaging and more hostile towards the Kim regime. This might have caused conflict with the DPRK because of North Korea reacting to perceived threats from the ROK.26

To address the economic influence the PRC exerts upon the DPRK, I add a control variable to examine the relationship between China—North Korean trade and conflict levels. For example, in 2011 North Korea’s trade with China increased from $3.5 billion to $5.6 billion and accounted for over 70 percent of all DPRK trade that year, up from 57 percent in 2010 (Yoon, 2013). This trade relationship might influence North Korea’s proclivity to engage in hostile foreign policy activities and was included as the second control variable.27

4. Research design and methods

This research uses time-series event data analysis of incidents of DPRK hostile foreign policy to examine the relationships between North Korean HFP and conditions faced by the Kim regime between 1997 and 2011. These events provide the data for examining North Korea’s foreign policy activities using the concept of “longitudinal history” (Allison, 1984).28 Additionally, I use regression analysis to examine the relationship between internal and external conditions faced by the Kim regime and its conduct of hostile foreign policy activities.

4.1. Event data analysis and scoring

Event data is typically taken from public sources (newspapers, journals, and broadcasts) and “constitute an imperfect summary of the events … coverage is not uniform, and it varies according to the needs of the reporters rather than the scholarly need for representativeness” (King and Lowe, 2003). Unfortunately, no database was available to support this research,29 thus I constructed a new database using event data from US, ROK, and North Korean government sources. Rather than code all events in a similar manner, I sought to grade each event by “intensity” to account for variations in conflict events. For example, a firefight at the DMZ is not given the same weight as the sinking of an ROK navy ship or the threat of nuclear warfare. To address this issue, I categorized and scored North Korea’s hostile foreign policy events using Azar’s (1993) Conflict and Peace Databank (COPDAB) definitions and scaling methodology, which scores hostile events between 0 (neutral) and 102 (full-scale warfare).30 While many other event data research projects rely upon machine-coded31 information (King and Lowe, 2003; Bond et al., 2000), this research uses hand coding of events between 1997 and 2011.32 For the analysis of North Korean events, hand coding provides advantages such as ability to integrate data from multiple languages and formats as well as judgments made based on my own analysis (rather than automated retrieval) to determine the applicability of specific events.33

4.1.1. Database construction

Research on a closed state can be a difficult task and North Korea is no exception. Data from the North Korean government is often either not available or highly suspect and any study of the DPRK must incorporate reporting from...
Fortunately, the dependent variable data (HFP events) is available from US and South Korean sources, and from official government pronouncements from North Korea. Much of the other data was available from “mirror statistics” and relied upon information on DPRK from other states. While data limitations are a concern, one of the overarching goals of this research is to demonstrate the usefulness of a systematic method to examine closed states. Despite these shortcomings, the data used in this project is the best public information available on North Korean activities.

I use a number of primary sources of information to construct the event database used in this analysis. This includes historic records and reports from a USFK historian (USFK, 2012), the United Nations Military Armistice Command (UNCMAC, 2012), South Korea’s Korean Institute for National Unification (KINU, 2011), and Fischer’s (2007) CRS Report. Additionally, I use media reports from several sources such as the KCNA website (2012), New York Times Historical Archives via Lexis-Nexis Academic Search. This resulted in a dataset with diverse and overlapping sources, which helped ensure the fidelity of the event data. Most of the reports were available in both English and Korean, but 41% were available only in Korean and required translation. The resulting database, after cross-checking for duplication, includes 1108 events.

4.1.2. DPRK conflict activities

Fig. 1 provides a graphic depiction of the intensity scores for the hostile foreign policy events that occurred between 1997 and 2011.

Fig. 1 indicates the scores (based on Azar’s scale) for each year for the HFP events, aggregated by quarter from 1997 to 2011. Peaks and valleys in this chart do sometimes correspond to key events, such as the 2000 ROK-North Korea summit (which was accompanied by a significant decrease in hostilities). Additionally, both the US invasion of Iraq (2003) and emergence of Kim Jong-un as the future leader of the DPRK (2009–2011) occurred during periods of heightened conflict. Yet this chart only demonstrates the incidence of DPRK conflict activities; this research seeks to identify linkages between levels of hostile events (as shown in Fig. 1) and conditions faced by the Kim regime.

4.2. Time-series regression models

I constructed two models (representing internal and external influences) using time series analysis of quarterly observations between 1997 and 2011 of the variables described above (dependent, independent and control). The first model focuses on internal effects (Hypothesis 1) and the second examines the effects of external influences (Hypothesis 2) that are potentially correlated with DPRK conflict.

4.2.1. Model 1 (Internal conditions) and model 2 (External conditions)

According to the H1, the dependent variable (Hostile Foreign Policy or HFP) is North Korea’s hostile foreign policy activity and the independent variables is the “deterioration of domestic conditions.” The deterioration of domestic conditions is

---

34 Internal surveys and research in North Korea are rare, although some important data was collected by aid organizations during the famine period on the social characteristics of North Korea (Woo-Cumings, 2002). Most of the survey data on North Korea social and political conditions comes from refugees, especially those in China (Haggard and Noland, 2006).

35 These reports were translated initially using automated methods (Google Translate, 2013) and then were reviewed by a Korean translator for accuracy.

36 For the statistical analysis, the events were aggregated and analyzed by quarter.
measured by social, political, and economic conditions (the independent variables show above). Model 1 is conceptually shown below.

Model 1 (Internal Conditions)

\[ HFP_t = \beta_0 + \beta_1 \text{Elite} + \beta_2 \text{Vol}_{t-1} + \beta_3 \text{WGI}_{t-1} + \beta_4 \text{DPRK CINC}_{t-1} + \beta_5 \text{GDP}_{t-1} + B_6 \text{Trade}_{t-1} + \beta_6 \text{Refugees}_{t-1} \]
\[ + \beta_7 \text{Infant Mort}_{t-1} + \beta_8 \text{Food}_{t-1} + \beta_9 \text{ROK Administrations}_{t-1} + B_{10} \text{DPRK and China Trade}_{t-1} + \mu_t \]

I use the model above for the regression analysis to test Hypothesis 1. The second proposition (H2) suggests that external conditions are more influential in North Korea’s choices to engage in hostile foreign policy activities and follows below.

Model 2 (External Conditions)

\[ HFP_t = \beta_0 + \beta_1 \text{UN Resolutions}_{t-1} + \beta_2 \text{Mil Exercises}_{t-1} + \beta_3 \text{US Leadership}_{t-1} + \beta_4 \text{ROK Leadership}_{t-1} \]
\[ + \beta_5 \text{Japan Leadership}_{t-1} + \beta_6 \text{US CINC}_{t-1} + \beta_7 \text{ROK CINC}_{t-1} + \beta_8 \text{Japan CINC}_{t-1} + \beta_9 \text{ROK Administrations}_{t-1} \]
\[ + \beta_{10} \text{DPRK and China Trade}_{t-1} + \mu_t \]

### 4.3. Data and statistical diagnostics

Because the dependent variable data, that is, HFP\(_t\) in both models, was found initially in daily increments and all of the independent variables were reported either yearly or quarterly, all of the data required other adjustments to allow for statistical analysis. For example, after running models using monthly, quarterly and yearly aggregation, the models using quarterly data were found to provide the best representation (and best statistical fit) of the data to the research question. Monthly data, although available for the hostility (dependent variable) data, required too much manipulation of the other variables while models using only yearly data provided too few observations. Thus, using quarterly data provided a suitable “middle solution” that afforded an acceptable number of observations for analysis without causing significant problems with collapsing yearly data into reportable units.

For each quarter, the total event intensities are summed and annotated. Scaled quarterly hostile foreign policy events were calculated using the following equation:

\[ HFP_{qtr} = \sum_{i=1}^{n} S_{E_i} \]

where HFP\(_{qtr}\) is the quarterly total intensity of hostile foreign policy events, \(S_{E_i}\) is the Azar score for the \(i\)th event, and \(n\) is the total number of events. A simplified example and calculation follows (Table 1):

<table>
<thead>
<tr>
<th>Hostile event ((E_i)) in a given quarter:</th>
<th>Azar score ((S_{E_i}))</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1: DMZ firefight</td>
<td>50</td>
</tr>
<tr>
<td>E2: Kidnapping of ROK citizen</td>
<td>44</td>
</tr>
<tr>
<td>E3: Mild Diplomatic protest at UN</td>
<td>6</td>
</tr>
<tr>
<td>E4: Expulsion of Foreign Press</td>
<td>29</td>
</tr>
<tr>
<td>HFP(_{qtr})</td>
<td>129</td>
</tr>
</tbody>
</table>

This example shows that for this particular quarter, the hostility intensity score is the product of all of the hostile events that occurred during that quarter (a score of 129). For each quarter, I record the dependent variable (intensity level) score and include that in the statistical analysis.\(^{38}\) The continuous independent variables (that were estimated on a yearly basis) were collapsed into quarterly data reports for analysis. This was done using one of two methods: (1) interpolation was used for “rate” data, such as GDP growth per person, CINC, WGI, elite volatility, infant mortality, and food availability and (2) data which reflected “hard numbers,” such as refugees and total trade, were divided into quarterly reports based on quarterly data.

To correct for correlation between successive time variables (autocorrelation), the independent variables were lagged. Tests for specification bias indicated that while it was possibly present in the models, solutions (such as finding additional

\(^{37}\) King et al. (1994) discuss problems with research involving small numbers of observations and using quarterly (rather than yearly) data helped mitigate this issue.

\(^{38}\) The use of quarterly data did require adjustments due to missing data, as there were entire years in which data was not reported. To fill gaps in annual reporting, single imputation using arithmetic mean or the last known values were used. While this is not optimal (original data is always preferred) and possibly induces some bias, this is more desirable than dropping the years with incomplete data (an alternate solution) which would result in the omission of critical observations. Baraldi and Enders (2010), and Howell (1983) discuss the merits and risks of this approach. While there are more sophisticated methods (such as multiple imputation) available (see King et al., 2001), after examining imputation options, the simplest solution and best fit for this data was to simply input data based on arithmetic mean or the last known value. This estimated data was included along with the reported information in the analysis.
5. Statistical analysis of DPRK hostile foreign policy activity

This study examines time-series event data surrounding the Kim regime’s hostile foreign policy events between 1997 and 2011 using longitudinal research. The data has been obtained through repeated observation of DPRK-related activities (designated as the dependent variable) during a given historical period (14 years). This method of focusing solely on the long-term activity of North Korea allows for a more structured and detailed examination of the DPRK and its conflict activities.

5.1. Hostile Foreign Policy Statistical analysis

The outputs of the statistical analysis using Cochrane-Orcutt AR(1) regression for the two models are shown in Table 2. Model 1 tests the overall hypothesis that internal conditions influence external conflict activities (H1) and examines the relationship between HFP and internal political, economic, and social conditions. In this first model, statistically significant relationships were found between hostile foreign policy activities and political instability (elite volatility) at the .10 level and food availability (at the .05 level). This provides support to H1 and that there is a potential correlation between internal (political and social) instability and increases in hostile foreign policy activities. This model demonstrated statistical significance and accounts for 13.58 percent of the variance in the hostility score (based on the $R^2$ value). These results provide

| World Gov Indicators$_{(t-1)}$ | 130.8264 (172.8839) |
| Elite Volatility$_{(t-1)}$ | 883.0903 (529.5215)* |
| DPRK CINC$_{(t-1)}$ | 123040.3 (83316.05) |
| GDP Growth$_{(t-1)}$ | -5.732308 (11.61382) |
| Total Trade$_{(t-1)}$ | -1402127 (1280578) |
| Refugees$_{(t-1)}$ | .1704198 (306227) |
| Infant Mortality$_{(t-1)}$ | 10.15777 (11.51928) |
| Food Availability$_{(t-1)}$ | -20025.59 (9971.864)** |
| UN Resolutions$_{(t-1)}$ | -24.3103 (51.3671) |
| Military Exercises$_{(t-1)}$ | 30.35326 (23.69077) |
| US Leadership Change$_{(t-1)}$ | 15.89118 (59.30885) |
| ROK Leadership Change$_{(t-1)}$ | 79.93548 (60.56048) |
| Japan Leadership Change$_{(t-1)}$ | -63.02935 (36.27616)* |
| US CINC$_{(t-1)}$ | -13828.96 (16027.38) |
| ROK CINC$_{(t-1)}$ | -165922 (88745.22)* |
| Japan CINC$_{(t-1)}$ | 2365.23 (14998.03) |
| ROK Administration$_{(t-1)}$ | 82.8621 (56.2484) |
| China and DPRK Trade$_{(t-1)}$ | -2.002619 (1.441219) |
| Adjusted $R^2$ | 0.1358 |
| Number | 58 |

*p < 0.10, **p < 0.05, ***p < 0.01.

Note: Coefficients are listed first followed by standard errors in parentheses.


variables) are problematic, considering the lack of information on North Korea. Thus, while there might be specification bias in the models, this is an assumed risk for this analysis. To account for potential heteroscedasticity issues, I use robust standard errors in both models. Finally, diagnostic tests indicated that autocorrelation was possibly present in both models and to address this issue, I use Cochrane-Orcutt AR(1) regression. Finally, I test for correlations (“multicollinearity”) and find high levels of correlation did exist between some of the variables. After attempting a number of standardized remedies to problems associated with multicollinearity (that is, transforming variables), none were effective. Multicollinearity is an assumed risk in this analysis.

In both models, tests for autocorrelation (Durbin Watson and Breusch-Godfrey LM tests) indicate that autocorrelation was possibly present. The advantage of using the Cochrane-Orcutt AR(1) regression technique is that it initially provides an estimate of the autocorrelation error, then includes that error while estimating new regression coefficients, and finally provides a regression output that confirms that the “fitted residuals are independent” (Maggin et al., 2011, 308).

The mean variable inflation factor (VIF) scores both models were at 15.90 (Model 1) and 3.95 (Model 2). After conducting diagnostic tests of joint significance or the "joint f test" (Blackwell, 2008), I find that the variables are influential in relation to the dependent variable, regardless of their correlation.

Gujarati and Porter (2005, 342) note that one method to deal with multicollinearity is to “do nothing” and given the characteristics of this data, this is the best option for this research.

Statistical analysis, with the help of the computer program Stata, is used to examine the data and help support conclusions on relationships between the variables. Stata is a commercially available statistical software package often used by social scientists to analyze the relationships between measurable characteristics (variables) of a specific phenomenon (Stata, 2012).
partial support to the idea that internal conditions do indeed influence DPRK conflict activities, especially the conditions faced by the political leaders. Additionally, the relationships not found (economic conditions) are also important and demonstrate that arguments surrounding North Korea’s conflict activities in response to economic challenges may have only limited value. While these results tell only part of the story, they do support the idea that when the North Korean regime is under political pressure or lacks adequate food supplies, it may choose conflict activities as a response.

Model 2 tests the second proposition (H2) that North Korea’s foreign policy choices are more influenced by external factors. This model includes the regression of a number of external factors (UN resolutions, leadership changes, national capabilities, military exercises and the two control variables) against the dependent variable (hostile foreign policy). Statistically significant relationships found in this model include Japanese leadership changes and ROK CINC.43 This model demonstrated statistical significance, but accounts for only 14 percent of the variance in the hostility score. These results might indicate that North Korea actively works to limit its conflict activities during leadership transition periods in Japan and when ROK national capabilities are increasing. Yet the relationships not found in Model 2 are also important. These include a lack of correlation between conflict and UN resolutions, military exercises, and US and ROK election cycles. Arguments that North Korea responds to external threats from the international community find less support because of this analysis. Finally, neither of the control variables (ROK Administration type or China-DPRK Trade) were found to be significant.

6. The determinants of North Korea’s external conflict

This research demonstrates the complicated nature of unruly data on a closed state and yields a number of useful conclusions. The first overarching observation is that Model 1 provides partial support to contention that between 1997 and 2011 internal political factors and food availability were potentially influential in North Korea’s external conflict activities. While this observation supports the concept of diversion, determining the true intentions of the Kim regime when it chooses to embark on conflict activities remains problematic. In any case, these statistically significant findings are consistent with the assumption that there is a relationship between internal conditions and external conflict.

Many of the external variables (such as UN resolutions, military exercises, and threats posed by the US and South Korea) are often assumed to cause increases in the Kim regime’s hostile foreign policy activities. This research provides only limited support for these types of “conventional wisdom” assumptions about North Korean behavior. Thus, based on these findings, efforts by the international community to change North Korea’s foreign policy behavior (for example, UN Security Council Resolutions) potentially have little effect in either increasing or decreasing Pyongyang’s conflict activities. This research alludes to other factors that might be influential in the Kim regime’s efforts to use conflict as a foreign policy alternative. These might include internal dynamics, such as efforts to bolster the position of the DPRK’s relatively new ruler, Kim Jong-un, or in conjunction with negotiations to secure additional international support and aid for the regime.

This study demonstrates that useful analysis can be done with publicly available conflict data to examine the DPRK’s political and military actions. It also provides an example of how to gather and analyze data on closed societies since North Korea is arguably the most isolated garrison state in existence. At the very least, studying the DPRK’s foreign policy behavior tells us something important about North Korea’s activities in the late 1990s through 2011: the Kim regime is more influenced by internal conditions than international community actions aimed at changing the Kim regime’s behavior.

Acknowledgment

The Center for Strategic Intelligence Research (CSIR) staff provided tremendous support for this research during my yearlong fellowship at the National Intelligence University (NIU) in Washington, DC.

This paper and its conclusions are those of the author and do not represent the views of CSIR, NIU, or the US government.

References

BOK (Bank of Korea), 2012. The Bank of Korea Online. Available at: www.bok.or.kr/index.jsp. keyword search — North Korea GDP (accessed 21.06.12.).

43 Both relationships between these variables and HFP were negative.